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Economic and Environmental Performance Indicators in Belgian GRI Reports

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Abstract

Despite the upsurge in sustainability reporting worldwide, there is still a large gap between the reporting rates of different countries and sectors around the world. This paper analyzes how Belgian organizations report the economic and environmental performance indicators in their sustainability reports, with the aim to evaluate the quality and completeness of this information. Besides a detailed content analysis of Global Reporting Initiative (GRI) reports of Belgian organizations, synergies with new developments, such as the GRI G4 guidelines and integrated reporting are sought. Economic aspects are generally reported through

disclosure of a larger number of indicators, as compared to environmental aspects, most likely because of financial reporting obligations. Nevertheless, huge differences exist between organizations (mainly between private and non-profit organizations) with respect to the amount and quality of information that is provided on these economic indicators in the GRI reports. Environmental performance indicators are often only reported on a basic level, but in a more consistent way, with limited differences between organizations. Moreover, there was no significant correlation between the use of a certified environmental management system (ISO 14001 or EMAS) and the quality of environmental reporting. There is also a clear difference with respect to the reporting behavior of service suppliers and manufacturers or distributors of goods, mostly in terms of number of indicators reported on. Finally, the possible application of existing indicators that integrate economic and environmental aspects in sustainability reporting is discussed. Including "integrated indicators" within the GRI framework may be a step forwards to integrated reporting.

Keywords: Eco-Efficiency, Environmental management system, Integrated reporting, Sustainability reporting, Global reporting initiative

1. Introduction

During the last decades, management approaches have evolved from a purely traditional businesses approach, with the main emphasis on economic performance, to an approach internalizing ecological and social concerns. The apparently low financial impact of ecological and social objectives (in the short run) was in accordance with the vision that the only societal responsibility of a firm was to maximize profit, in an ethical way and in compliance with laws and regulations (Friedman, 1970). The concept of "sustainable development", mainly popularized by the Brundtland Report (WCED 1987), and its translation for the corporate world into "corporate sustainability" (CS) (Dyllick and Hockerts, 2002), allowed all types of organizations to develop a broader and more holistic view on their responsibilities towards society (Oskarsson and von Malmborg, 2005).

In line with this growing attention for sustainability in different types of organizations, the publication of sustainability reports has significantly increased over the last 20 years. Sustainability reports contain qualitative and quantitative information on how an organization has managed its economic, environmental, and social impacts within a certain period (Daub, 2007). The most widely used guidelines for sustainability reporting are the Global Reporting Initiative's (GRI) Guidelines. GRI's Sustainability Reporting Guidelines offer any type of organization a framework to start up reporting on its sustainability performance in a structured and comprehensive way, including a range of possible performance indicators to report on within the economic, social, and environmental dimensions of sustainability (GRI, 2011a, 2013a).

The first sustainability reports evolved out of environmental reports, initially mainly published by companies with a history of environmental pollution (Ballou et al., 2006). Gradually, the publication of sustainability reports increased, and also other sectors (e.g., banking and finance) started to report on their environmental, economic and social performance (Kolk, 2004a, 2010). Important differences exist between countries with respect

to the number of sustainability reports that are being published, mainly due to a country's legal system and through stimulation by national policies (Kolk, 2004a). For example, due to stringent regulatory requirements, France, South Africa and Denmark are now leading countries in terms of the number of national companies publishing sustainability reports (KPMG, 2013). When considering the world's largest 250 global companies (G250), 93% of them compiled sustainability reports in 2013, as compared to only 35% of the G250 publishing sustainability reports in 1999 (KPMG, 2013). Nevertheless, sustainability reporting is currently still mainly done by large companies and multinationals, which are often aware of the high visibility and impact of such activities (Ho and Taylor, 2007; Perez and Sanchez, 2009).

1.1 Legal Framework Related to Sustainability Reporting

Financial reporting is required in the European Union (EU) by the recently revised Transparency Directive (Directive 2013/50/EU of 22 October 2013) and Accounting Directive (Directive 2013/34/EU of 26 June 2013). This directive requires disclosure of major holdings of all financial instruments that could be used to acquire economic interest in listed companies. The Accounting Directive aims at reducing unnecessary administrative costs for small companies by simplifying the preparation of financial statements and reducing the amount of information required by small companies. Together with the obligations to disclose non-financial information, the new Directive introduces obligations for large extractive and logging companies to report on the payments they make to governments (country-by-country reporting). The new directive obliges businesses and governments to disclose revenues from natural resources, to contribute to the transparency, and to fight against tax fraud and corruption.

Industrial and agricultural activities with a high pollution potential must comply with obligations defined by the EU. The aim is to prevent or reduce pollution of the atmosphere, water and soil, as well as the quantities of waste arising from industrial and agricultural installations, to ensure a high level of environmental protection. After several revisions of the Integrated Pollution Prevention and Control Directive (IPPC), the Directive on Industrial Emissions (IED) 2010/75/EU was adopted on 24 November 2010, and makes detailed information on the emissions and the off-site transfers of pollutants and waste from approximately 24,000 industrial facilities accessible to the public.

The European Pollutant Release and Transfer Register (E-PRTR) is a register that provides key environmental data from industrial facilities in EU Member States and in Iceland, Liechtenstein, Norway, Serbia and Switzerland. For each facility, information is provided concerning the amounts of pollutant released into air, water and land as well as off-site transfers of waste and of pollutants in waste water from a list of 91 key pollutants including heavy metals, pesticides, greenhouse gases and dioxins for years 2007 onwards.

In Belgium, environmental issues are regulated at the regional level (i.e.: the 3 regions, Wallonia, Brussels Capital Region and Flanders), yet a separate, but somewhat similar environmental regulation is applied within these regions. With respect to environmental aspects, companies in Belgium that could cause a nuisance or pose a threat to people or to the

environment need an environmental permit or require a reporting permit. In Flanders, the Flemish Environmental Agency makes these data on emissions into air and surface waters from organizations with a permit duty available in a public database, yet there is no obligation of public reporting by other organizations (without a permit duty).

Although sustainability reporting is not mandatory in Belgium, the Belgian Company Law, which is an implementation of the EU Modernization Directive, requires disclosures that are clearly related to non-financial or sustainability reporting. All small and large companies are required to file annual financial statements (comprising a balance sheet, an income statement, notes to the financial statements, a statement of accounting principles, a list of board members and a "social" balance sheet). Since 2010, it is also stipulated that the annual report of listed companies should include a statement on corporate governance with minimal content information. However, the organization's contribution to the sustainability of a larger economic system is not included in these compulsory financial reports, whereas stakeholders might be interested in this information.

Contrary to Belgium, the information disclosure on sustainability performance is mandatory for large enterprises in some other European countries. For example, large businesses in Denmark are required to account for their work on corporate social responsibility, and listed companies in France are obliged to include in their annual reports information relating to personnel and to the environmental consequences of their activities.

1.2 Current Research on Sustainability Reporting

In line with the growing number of sustainability reports published over the last 20 years, the last decade has seen an increase in scientific research on sustainability reporting (Hahn and Kühnen, 2013). Many articles on sustainability reporting focus on the content, scope and structure of the reports (Roca and Searcy, 2012), while little attention has been paid to which specific indicators are disclosed (Adams and Frost, 2008). The few examples in the literature of research on reporting indicators are found in Spain (Gallego, 2006), Greece (Skouloudis and Evangelinos, 2009), and Canada (Roca and Searcy, 2012). Despite the significant increase in research on sustainability reporting over the last few years, there is still an important gap concerning research on the quality of reporting (Hahn and Kühnen, 2013).

Moreover, until now only very few studies investigated the content and comprehensiveness of sustainability reports issued by Belgian companies. Bouten et al.'s (2011) research defined "comprehensive reporting" as requiring three types of information for each disclosed CS item, i.e., vision and goals, management approach, and performance indicators. They analyzed the reporting behavior (in annual reports published in 2005) of 108 publicly traded Belgian companies, and this analysis revealed a low level of comprehensive reporting in Belgium.

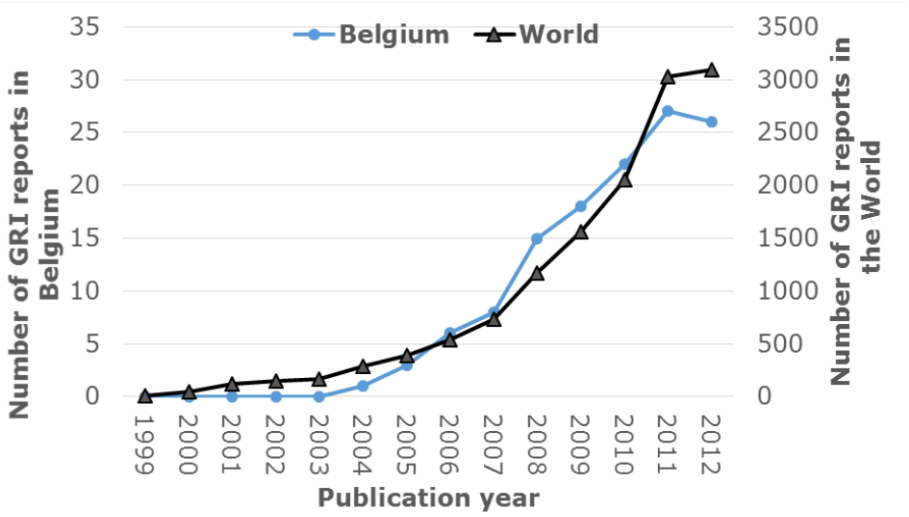

Figure 1. Number of reports disclosed in the GRI database in Belgium and in the World (Based on the GRI Sustainability Disclosure Database, http://database.globalreporting.org/).

The attention for sustainability reporting in Belgium has been growing since 2004, as is shown by the number of sustainability reports in the GRI Sustainability Disclosure Database: a significant increase appeared between 2004 and 2011, followed by a slight decrease in the number of GRI reports in 2012 and 2013 (Figure 1). A detailed analysis of what is exactly reported (aspects and indicators) and whether the quality of reporting is satisfactory is not available at the moment. Because most published studies focused on social aspects of sustainability reporting, our study focuses on the environmental and economic aspects of sustainability reporting.

The present assessment of Belgian sustainability reports contributes to the rather scarce literature on this topic (Skouloudis et al., 2009). The results can be used to compare reporting practices between different countries, when more information on this topic becomes available in other countries. Besides learning how Belgian companies report on economic and environmental issues, it is also the purpose to study how economic and environmental reporting are linked, in a movement towards more integrated reporting.

2. Materials and Methods

The study is based on a content analysis of GRI reports of organizations located in Belgium. The applied methodology was partly based on the work of Roca and Searcy (2012) and Skouloudis et al. (2009, 2010). In this section, the GRI guidelines will be discussed, as well as the selection of the Belgian organizations and GRI reports, and the method of analysis.

2.1 GRI Reporting Framework and Indicators

The GRI, an international organization based in Amsterdam, was established in 1997 to make sustainability reporting the standard practice by providing guidance and support to all types of organizations (GRI, 2013a).

Some of the main advantages of the GRI Sustainability Guidelines are their completeness,

global recognition and use, and their multi-stakeholder approach, while the main disadvantages are its complexity, time consuming and costly process, and the lack of synergies between the different reporting dimensions (Brown et al., 2009; Kolk, 2004b, 2010; Lozano and Huisingh, 2011).

The first generation of GRI Sustainability Reporting Guidelines were launched in 2000, followed by the second generation (G2) in 2002, the third generation (G3 and G3.1) in respectively 2006 and 2011, and the fourth generation (G4) in May 2013. Because the fourth generation of GRI guidelines (G4) has been launched recently, most organizations are currently still reporting through adherence to the third generation of GRI guidelines (G3 and G3.1).

The GRI guidelines offer performance indicators in the following categories: economic aspects, environmental aspects, labor practices and decent work, human rights, society, and product responsibility (GRI, 2013a). In the G3 and G3.1 guidelines, reporting on respectively all, minimum 20, or minimum 10 performance indicators is required in order to achieve an application level of A, B or C. However, in the new G4 guidelines these application levels have been replaced by two "in accordance" criteria options, i.e. Core and Comprehensive (GRI, 2013d).

2.2 Selection of Belgian GRI Reports and Organizations

For the selection of the reports to be included in the analysis, a preliminary screening of the Belgian GRI reports in GRI's Disclosure Database was performed. In February 2013, the database contained 123 GRI reports, published by 43 different organizations based in Belgium, following the G3 and G3.1 guidelines. When an organization published multiple reports (i.e. over different years), only the most recent report was taken into account. Because of the very limited number of GRI reports from SMEs, the focus of this study was set on multinationals and large enterprises only. Organizations that did not publish their report on the GRI database or the organization's own website, were also excluded. Since this research was finalized in the beginning of May 2013, only reports following the G3 and G3.1 were considered.

An inventory was made of all the environmental and economic GRI indicators included in the reports of the 27 large enterprises. The environmental and economic indicators were listed in an Excel workbook, first for each organization separately, and then organizations were grouped according to the organization type, and type of supply. Three types of organizations were distinguished: non-profit, private and governmental. The type of supply refers to whether a company provides goods or services. This distinction is not made in the GRI, but is likely to affect the reporting of economic and environmental indicators. Because the 27 Belgian organizations belong to 21 different sectors, no further subdivision was made according the sector to which the organizations belong.

2.3 Method of Analysis

The analysis of the GRI reports was performed manually, through content analysis. During the analysis, information related to an indicator, without explicitly referring to that specific

indicator, was also captured. Besides quantitatively studying which economic and environmental indicators were addressed in the GRI reports, the quality of reporting was also assessed. For this purpose, the approach of Skouloudis et al. (2009), approved by the Union of Environmental Scientists in Greece, was followed, using a scorecard.

In Skouloudis et al.'s (2009) method, a scorecard was used to score the indicators in GRI G3 and G3.1. Each indicator is scored between 0 and 4 points. When an indicator was not addressed in the report, a score of 0 was assigned. Brief or generic statements received 1 point, a more detailed but still basic coverage was attributed 2 points, a more extensive coverage received 3 points and 4 points were assigned when the information was complete and systematic, allowing comparison with other organizations (Skouloudis et al., 2009). No weighting factors were applied to calculate aggregated scores, since the importance of different indicators (especially for environmental topics) depends on the activities of an organization (Morhardt et al., 2002). An example of the scoring system is provided in Table 1.

In section 3 (Results and discussion), the scores attributed to the organizations and indicators will be expressed as a percentage, relative to the potential maximum scores (only taking into account the indicators which received a score >0). Because of the limited number of GRI reports available and the overall relatively basic way of reporting, the analysis was mainly qualitative, without rigorous statistical analysis of the data.

Table 1. Example of the scoring system (based on Skouloudis et al. 2009), exemplified by core indicator EN3 (Direct energy consumption by primary energy source), the most reported one in all organization types.

Score	Rating requirements (based on Skouloudis et al., 2009)	Example
0	The specific GRI topic is not covered in the report	No information about direct energy consumption by primary energy source at all.
1	The report provides generic or brief statements, without specific information on the organization's approach to the topic	"The direct energy consumption is monitored on a weekly basis".
2	The report includes valuable information on the topic but there are still major gaps in the coverage. The organization identifies the assessed issue, but fails to present it sufficiently	"In 2014, the Company's total primary energy consumption was equivalent to 1,600,000 kWh."
3	The provided information is adequate and clear, and shows that the reporting organization has developed the necessary systems and processes for data collection on the assessed topic and attempts to present it in a consistent manner	A graph with the evolution of energy consumption in the period 2010-2014 is provided, both for the production process and the office work.
4	Coverage of the specific issue can be characterized as ''complete'' in the report, meeting the GRI guidelines. It provides the organization's policy, procedures/programs and relevant monitoring results for addressing the issue	"In 2014, the Company's primary energy use was equivalent to 1,600,000 kWh. 95% of this energy consumptions was attributed to the production process itself, while 5% of this consumption was related to office work. By 2020, we want to reduce our primary energy consumption by 20% compared to its 2010 level". A graph with the evolution of the energy consumption in the period 2010-2014 is also provided.

3. Results and Discussion

This section presents the results of the study (i.e., the typology of the Belgian reports, the disclosed economic and environmental indicators, and the quality of reporting), along with a discussion on the integration of economic and environmental indicators.

3.1 Typology of Published Belgian GRI Reports

In general, three types of titles can be distinguished in Belgian GRI reports: sustainability report (33%), annual report (37%) and others (30%) (e.g., Corporate social responsibility report, Sustainable development report). In Canada, "Sustainability report" is the most used term, whereas in Greece, the titles are more diverse (Skouloudis et al., 2010). The different titles given to these GRI reports might reflect a different vision of countries towards

sustainability (Roca and Searcy, 2012).

Over the last 5 years, the tendency towards integrated reporting, i.e. embedding sustainability and financial information into one integrated report, is growing worldwide. As a consequence, an increasing number of reports now have the title "Integrated report" and clearly discuss the significance of integration as part of their content (e.g.; in Australia) (GRI, 2013b). In Belgium, however, integrated reporting is still not a common practice and the GRI G3 and G3.1 guidelines are still mostly used. In March 2014, the GRI Sustainability Disclosure Database did not contain any report drawn up according to the G4 guidelines.

Of the 27 reports analyzed in this study, 9 were GRI checked, 5 were externally verified, while 11 reports were self-declared, and 2 reports were undeclared. Eleven organizations were classified as "product manufacturers", whereas 16 were categorized as "service suppliers". Only one organization reported according to application level A, 13 adopted application level B, 10 used application level C, and 3 organizations did not declare their application level (see Appendix 1 for more information and an overview of the organizations included in this study).

3.2 Disclosure of Economic and Environmental Indicators

Within the context of the GRI reporting framework, organizations should primarily report on material topics, i.e. topics that "have a direct or indirect impact on an organization's ability to create, preserve or erode economic, environmental and social value for itself, its stakeholders and society at large" (GRI, 2013c). In general, the number of economic and environmental indicators reported (and thus the indicators assumed to be material for an organization) was very variable, even within one GRI application level. Although the number of indicators reported on can vary depending on the activities of the organization and the material topics that result from them, the quantity of indicators reported on also contributes to the comprehensiveness of a report. An overview of the economic and environmental indicators included in the GRI framework (GRI G3 and G3.1) is provided in Appendix 2.

With respect to the economic indicators, economic performance was reported in 65% of the investigated GRI reports, while less than 40% of the Belgian organizations reported the market presence and the indirect economic effects. Indicator EC1 (Direct economic value) was the only indicator reported by all organizations (Figure 2). Non-profit organizations reported indicators EC2 (Financial implications of climate change), EC5 (Local remuneration), EC8 (Investments in infrastructure and services) and EC9 (Significant indirect economic consequences) less frequently, whereas only 18% of the private organizations provided information on EC5 (Local remuneration). Governmental organizations showed a tendency to pay less attention to EC2 (Financial implications of climate change), EC6 (Local suppliers), EC7 (Local employers) and EC9 (Significant indirect economic consequences).

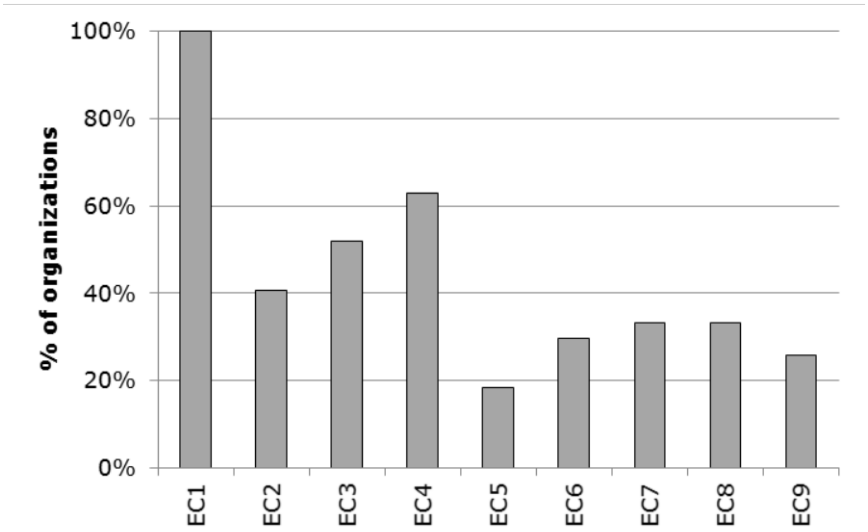

Figure 2. Reporting of economic indicators by Belgian organizations.

In general, private and governmental organizations put more emphasis on disclosing economic indicators in their reports compared to non-profit organizations (see Table 2). Private organizations addressed almost all economic GRI indicators, whereas non-profit organizations attached less importance to some indicators, such as for example "Indirect economic effects".

When the organizations are grouped according to "Goods" and "Services", it can be concluded that companies that make or sell "Goods" (physical products) reported more economic indicators compared to service suppliers. Especially EC5 and EC9, which are also the two "additional" indicators among the economic indicators, were reported by less than 10% by service suppliers, while almost 20% of the product manufacturers or retailers reported on them.

Table 2. Percentage of indicators reported by Belgian companies, according to organisation type and type of supply

	Organization type			Type of supply	
	Non-profit	Private	Governmental	Services	Goods
Environmental indicators	31%	48%	42%	40%	49%
Economic indicators	32%	40%	40%	36%	42%

Among the environmental aspects, "Energy" was reported most often by private and governmental organizations, whereas "Biodiversity" and "General aspects" were the least reported ones. Archel et al. (2008) also found a low level of disclosure on indirect impact indicators in GRI reports published in 2005. Non-profit organizations reported most on "Materials", and paid the lowest attention to "Other environmental aspects" in their reports. When the environmental indicators were investigated separately, core indicator EN3 (Direct energy consumption by primary energy source) was the most reported one in all organization types (non-profit, governmental and private) (see Figure 3).

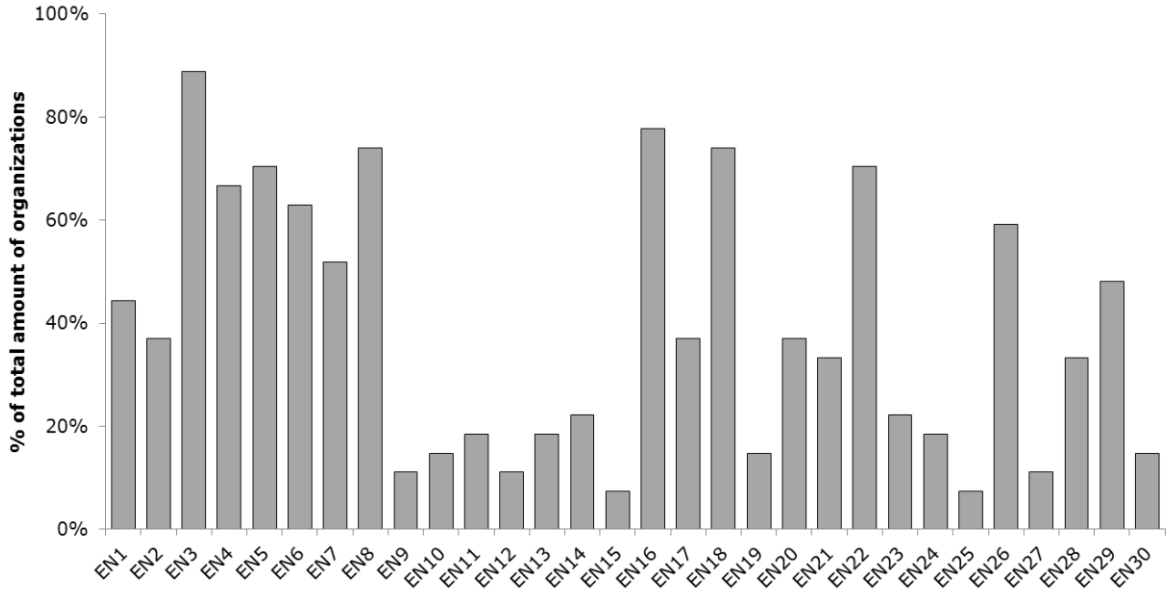

Figure 3. Reporting of environmental indicators by Belgian organizations

Nowadays, many organizations focus on finding new ways to reduce their overall energy use, because these efforts bring important economic and environmental benefits. Monitoring (and reporting) of energy consumption stimulates organizations to become more efficient, thereby reducing their costs and being prepared for expected increases in energy prices. All non-profit organizations in the present study also reported on indicator EN8 (Total water withdrawal by source), while information on indicators EN4 (indirect energy consumption by primary energy source), EN16 (Total direct and indirect greenhouse gas emissions by weight) and EN22 (Total weight of waste by type and disposal method) was found in all GRI reports from governmental organizations.

Since the latest revision of the Eco Management and Audit Scheme (EMAS), (Regulation (EC) No 1221/2009; EMAS) that came into force on 11 January 2010, EMAS (III) provides core indicators or Key Performance Indicators (KPIs), with which registered organizations can measure their environmental performance and monitor their continual environmental improvement against set targets. Six environmental core indicators have been defined (see Table 3) for a more harmonized and thorough consideration of direct environmental effects. EMAS III environmental core indicators focus on the most significant environmental aspects such as resource and energy efficiency. These six environmental core indicators have equivalent or similar indicators in the GRI framework (Table 3). Contrary to EMAS, ISO 14000 did not define indicators as a tool to describe environmental performance. Only 3 of the 27 organizations analyzed in the present study had an EMAS certification (combined with ISO 14001), whereas 16 had an ISO 14001 certification.

Table 3. Comparison between environmental indicators in GRI and EMAS (III)

Aspect in GRI	**Corresponding Core Indicator in GRI**	**Key Indicator in EMAS**	**Indicator (metric)**
Energy	Direct and indirect energy consumption by primary energy source (EN4 and EN5) Initiatives to provide energy-efficient or renewable energy-based products and services, and reductions in energy Requirements as a result of these initiatives (EN6)	Energy efficiency	Total direct energy use: total annual energy consumption (MWh or GJ) Total renewable energy use: percentage of total annual consumption of energy produced by the organization from renewable energy sources
Materials	Materials used by weight or volume (EN1)	Material efficiency	Annual mass-flow of different materials used (tons)
Water	Total water withdrawal by source (EN8) Percentage and total volume of water recycled and reused (EN10)	Water	Total annual water consumption (m^3)
Emissions, Effluents, and Waste	Total weight of waste by type and disposal method (EN20) Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally (EN24)	Waste	Total annual generation of waste (tons) Total annual generation of hazardous waste (kg or tons)
Biodiversity	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas (EN11)	Biodiversity	Use of land: (m^2 of built-up area)
Emissions, Effluents, and Waste	Total direct and indirect greenhouse gas emissions by weight (EN16) NOx, SOx, and other significant air emissions by type and weight (EN20)	Emissions	Total annual emission of greenhouse gases (incl. at least emissions of CO_2, CH_4, N_2O, HFCs, PFCs and SF6, in tons of CO_2-equivalent) Total annual air emission (incl. at least emissions of SO_2, NO_X and PM, in kg or tons)

Organizations with an ISO 14001 certification, on the average, reported on more environmental indicators (on the average, 12 of the 30 environmental indicators are reported) than organizations without a certified management system (who report on 10 environmental indicators on the average), but having an EMS certification does not result in a higher quality of reporting. For most companies, an EMAS registration did not represent a ‘‘turning point’’

neither in their environmental strategies, nor in their performance (Daddi et al., 2011), nor in their environmental reporting.

Companies with a (former) important environmental impact (e.g., from the chemical or pharmaceutical industry) have a longer tradition in environmental reporting. This experience with environmental reporting, often in combination with very advanced environmental management systems, was still visible in the GRI reports. The environmental indicator EN18 (i.e.; Initiatives to reduce greenhouse gas emissions and reductions achieved) was the second most reported indicator by private organizations. Among these private organizations, many industries are obliged to provide environmental data concerning the amounts of pollutant released into air, water and land to E-PRTR. Product manufacturers also reported more environmental indicators compared to service suppliers (Table 2), which is most likely explained by the higher environmental impact of the industries that make (physical) products ("Goods"). Finally, organizations from the non-profit sector reported on less environmental indicators (on average 9) compared to private and governmental organization (an average of 11 for both types of organizations).

In 2010, ISO 26000, an international voluntary and non-certifiable standard providing guidelines for social responsibility (SR), was launched. Despite the recent release of this standard, it has already been adopted by two organizations included in our study. GRI provides suitable guidelines to support organizations interested in reporting on the topics covered by ISO 26000 as part of its comprehensive Sustainability Reporting (GRI, 2011b). Although ISO 26000 does not offer guidance on SR performance reporting, its content does cover a very similar range of topics to that in the GRI guidelines.

3.3 Quality of Reporting

The average scores obtained for the reporting of environmental and economic indicators, expressed as a percentage of the highest possible score (per organization, taking only the reported (material) indicators into account), were respectively 55% and 70% (Table 4). The scores given to the reporting of economic indicators varied widely (see Appendix 3), with the exception of the core indicator EC1 (Direct economic value), for which 14 organizations obtained a maximum score of 4, and 6 organizations received a score of 3. Indicator EC5 (Local remuneration) was only reported by 5 organizations, with only one organization providing full and systematic data (score 4), two organizations providing basic information (score 2), and one organization providing just a brief statement (score 1).

A considerable difference exists between organizations with respect to the quality of the information that is provided on the economic indicators in their GRI reports (Table 4). The best overall economic indicator reporting performance (100%) was obtained by 3 organizations that only reported on three economic indicators that were assumed material, but the information was very complete. The only organization reporting on all economic indicators was an organization from the financial sector (organization #14). The global score of 72% for the reporting of economic indicators also reflected the good quality of reporting, as this organization is most likely very familiar with financial reporting.

Table 4. Number of indicators reported and scores obtained for the reporting of environmental and economic indicators, expressed as a percentage of the highest possible score (taking only the reported (material) indicators into account).

Organization	# of economic indicators reported	Score for economic indicators	# of environmental indicators reported	Score for environmental indicators	Certified EMS
#1	3	67%	11	59%	EMAS
#2	3	100%	14	71%	ISO14001
#3	2	63%	11	70%	-
#4	2	75%	2	50%	ISO14001
#5	5	44%	12	48%	ISO14001
#6	6	63%	13	52%	EMAS
#7	4	81%	7	71%	-
#8	2	88%	9	56%	ISO14001
#9	2	50%	4	69%	ISO14001
#10	2	88%	8	34%	ISO14001
#11	8	47%	22	47%	ISO14001
#12	2	50%	14	46%	-
#13	5	75%	15	53%	-
#14	9	72%	15	52%	-
#15	3	42%	16	45%	ISO14001
#16	3	92%	12	50%	-
#17	4	88%	3	67%	-
#18	3	50%	11	70%	-
#19	5	80%	12	50%	EMAS
#20	4	63%	16	48%	ISO14001
#21	3	58%	3	50%	-
#22	4	63%	4	56%	-
#23	3	50%	17	65%	ISO14001
#24	8	47%	15	55%	ISO14001
#25	2	100%	10	50%	ISO14001
#26	5	85%	15	53%	ISO14001
#27	3	100%	5	55%	-
average	4	70%	11	55%	

For the reported environmental indicators (see Appendix 4), a score of 2 was very often assigned, indicating that reporting occured on just a basic level, far from providing full and systematic information that would allow comparison with other organizations. Environmental indicators EN3 (Direct energy consumption by primary energy source) and EN16 (Total direct and indirect greenhouse gas emissions by weight) received the highest overall score. The organization that obtained the best score (37%) for the reporting of environmental

indicators was a large organization from the chemical sector that already published its seventh sustainability report, showing much experience with sustainability reporting. Perez and Sanchez (2009) also mentioned that the largest companies in the mining industry were clearly producing more comprehensive and more sophisticated sustainability reports.

Additionally, our research found that the reporting of environmental data in the published Belgian GRI reports was not qualitatively better in organizations with an ISO 14001 certification. The average score was 53% for companies with an ISO 14001 certification, and 59% for companies without certified environmental management system, and this difference was significant ($p<0.01\%$). The three companies with an EMAS certification had a score of 50%, 52% and 59%, but were not the best performing companies with respect to the quality of reporting of environmental indicators.

In 2005, the Belgian Federal Government decided that all Federal Agencies with more than 100 employees should obtain an EMAS certification by the end of 2014. Regional governments also emphasize their exemplary role with respect to environmental management, which creates the expectation of a better performance of governmental organizations related to the reporting of environmental indicators. Until 2014, no GRI reports had been disclosed by these Federal Agencies. Other governmental organizations that already published a GRI report obtained a higher score (on average 60%) compared to private organizations (average score of 53 %) for the reporting of environmental indicators. Nevertheless, within the private organizations, important differences existed in the quality of environmental reporting.

3.4 Integration of Economic and Environmental Indicators

Whereas indicators that address economic, environmental and social aspects are often addressed separately, many indicators are interlinked and should be addressed in an integrated and holistic way in the organization for effective improvement of sustainability performance (Lozano and Huisingh, 2011; Lozano, 2013). Nevertheless, integrated indicators, such as eco-efficiency indicators, offer possibilities to communicate on economic and environmental performance (Magerholm, 2003). Rather than publishing separate sustainability reports, companies are recognizing the need for a more integrated approach. However, a lot of work still has to be done to educate companies about the implications of integrated reporting, showing its advantages without being overwhelmed with information (ACCA, 2014).

Interconnections between some indicators of sustainability reports are strong (Lozano and Huisingh, 2011), and already reported by some organizations, although not explicitly demanded by the GRI guidelines (Lozano, 2013). With respect to environmental and economic aspects, reporting on “Investments and the environment” has been proposed by Lozano (2013) as an integrated indicator. Of the reports analyzed in the present study, 70% directly or indirectly mention that investments in the environment were made, while only 22% explicitly mention the monetary investments made in improving the environmental performance, or the capital that was saved by taking some specific measures. Only in one report, an eco-efficiency indicator was calculated, which illustrates that interlinking economic and environmental performance is still in its infancy. GRI could find inspiration in ongoing

initiatives, in which integrated indicators are being or have been developed.

The concept of "Eco-efficiency" has been in use for more than 3 decades and several eco-efficiency indicators have been applied with the purpose to inform policy at international, national and sectorial level (ESCAP, 2009). In 1999, the European Environmental Agency (EEA) concluded that Environmental "headline" indicators were needed to build eco-efficiency ratios (Moll and Gee, 1999), and started to build a set of environmental headline indicators. The EEA also encouraged the harmonization of eco-efficiency indicators between micro and macro levels. The World Business Council for Sustainable Development (WBCSD) working group on eco-efficiency metrics proposed a similar set of indicators to the EU level "headline" indicators proposed by the EEA (EEA, 2013). The United Nations Environment Programme (UNEP) and the WBCSD have both been actively involved in the policy development of cleaner production and eco-efficiency and worked together to disseminate them. In 2000, the WBCSD proposed 12 action points, which, if adopted by the various stakeholder groups, would be a step forward toward an eco-efficient future. One of these points was the reporting of company eco-efficiency and sustainability performance openly to stakeholders (WBCSD, 2000). The United Nations Economic and Social Commission for Asia and the Pacific (ESCAP, 2009) proposed a set of resource use intensity and environmental impact intensity indicators, using monetary outputs as a numerator (Table 5). Instead of taking a pure output referenced item (e.g., sales or production), Müller and Stumm (2001) proposed to use the value added as a reference (numerator) in the calculation of eco-efficiency indicators, for a more fair view on a company's performance. The three core indicators developed by the National Round Table on the Environment and the Economy (NRTEE)—for energy, waste and water intensity—were designed to help companies evaluate their performance over time with respect to the WBCSD's first two elements of eco-efficiency: reducing material requirements through improved waste and water management, and reducing energy intensity (NRTEE, 2001).

Another example of an integrated indicator combining environmental and economic aspects is the resource efficiency indicator. The Europe 2020 Strategy explicitly acknowledges the need to create synergies between economic and environmental goals, calling for a transition towards a "green economy" (European Commission, 2011). Greening the economy entails reducing environmental costs through a more efficient use of resources, thereby contributing to growth, competitiveness and job creation (Davies and Mullin, 2010). Investments in environmental protection will help to transform Europe into a knowledge-based, resource-efficient economy, and are indispensable for protecting and improving the quality of the environment. Concrete targets to improve resource efficiency are set in the "Roadmap to a resource efficient Europe" (European Commission, 2011). Defining indicators and resource efficiency targets will help to take into account the costs and benefits of using resources more efficiently and the private sector will benefit from better signals for their investment plan (European Commission, 2012). In 2012, The European Commission proposed to use the Raw Material Consumption (RMC, expressed in Euro/ton) indicator. A higher ratio would indicate better performance, with growth consuming relatively fewer resources. In the GRI (G3.1 and G4), the aspects "Materials" and "Energy" deal with resources, but not in relation to an

economic indicator. Although the development of indicators is still a work in progress (GRI, 2013b), GRI could propose the use of a suchlike indicator in its guidelines. It is also of primary importance that 'integrated indicators' take the advantage of various sources of available knowledge, in order to make them a practical tool that is also effectively used (Girard et al., 2015).

Table 5. Eco-efficiency indicators presented by different organizations

	Eco-efficiency indicator		
Aspect	**NRTEE (2001)**	**UNCTAD (2003)**	**ESCAP (2009)**
Energy	Energy intensity indicator (Total energy consumed [MJ] /Unit of production or service delivery)	Non-renewable primary energy input / value added [MWh/€]	Energy intensity [J/GDP]
Materials			Material intensity [DMI/GDP]
Water	Water intensity indicator (Total water taken in [m^3] / Unit of production or service delivery)	Water use / value added [m^3/€]	Water intensity [m^3/GDP]
Land use	-	-	Land use intensity [km^2/GDP]
Emissions to water	-	-	Emission to water intensities [t/GDP]
Emissions to air	-	Global warming contribution / value added [t CO_2 eq/€] Contribution to ozone depletion / value added [t ODS/€]	Emission to air intensities [t/GDP] GHG emissions intensities [t/GDP]
Waste	Waste intensity indicator (Total wastes generated [kg] / Unit of production or service delivery)	Waste disposed / value added [m^3/€]	-

4. Conclusion

Sustainability reporting has gained importance over the last decades as a means to disclose both qualitative and quantitative information on organizations' sustainability performance to different groups of stakeholders. Quantitative sustainability information is often included in sustainability reports through the use of sustainability indicators, yet they are mainly presented in a compartmentalized way, drawing barriers between the economic, social, and environmental bottom line of the organization (e.g., the GRI Sustainability Reporting Guidelines).

This study focused on the economic and environmental indicators present in Belgian sustainability reports, and was aimed at providing insights on their presence, quality, and potential for integration. The research found that, within comparable organizations and comparable sectors, the aim should be to report on an equivalent number of indicators, at a similar quality level, in order to cover all material topics (as stipulated by the GRI G4

guidelines) and to allow a comparison of the sustainability performance of different organizations.

A difference with respect to the reporting behavior of service suppliers (e.g., banks, universities, NGOs) and product manufacturers was also found, possibly because the GRI Guidelines are more geared towards product manufacturers. Whether this limitation is better addressed with the new G4 guidelines, is still not clear. "Supplier Assessments" have been added to GRI, as a new aspect within the different categories of indicators. This modification is mainly meant to improve the responsibility along the supply chain, but an evaluation of its effectiveness will only be possible when more G4 reports are made available.

Synergies between economic, environmental and social indicators should be sought, to enable sustainability reports to provide a more holistic view, i.e. one that is also useful in everyday business and that integrates different aspects of value creation. Now, the G4 guidelines only refer to the principles of integrated reporting, but this is not reflected in the indicators, which still maintain the formerly created compartmentalization. Nevertheless, several indicators combining economic and environmental aspects already exist, such as eco-efficiency indicators and resource efficiency indicators, and could be used within the GRI framework. Including these "integrated indicators" within the GRI framework may be the next step forward to integrated reporting.

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Appendix

Appendix 1. Coded list of organizations included in the present study, with information on the organization and on the GRI report

Appendix 2. Economic and environmental indicators in the GRI Sustainability Guidelines

Appendix 3. Scores attributed to the reporting of economic indicators

Appendix 4. Scores attributed to the reporting of environmental indicators